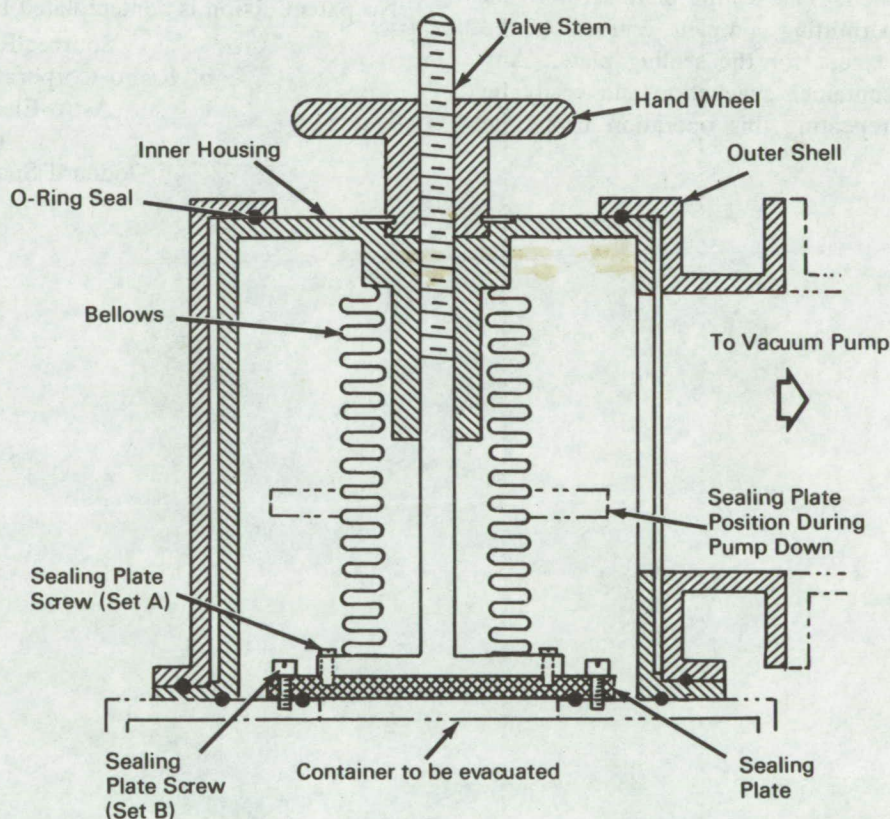


NASA TECH BRIEF



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Seal-Off Assembly Permits Rapid Evacuation of Air from Containers



The problem:

To develop a method that will permit: (1) rapid container evacuation using large diameter tubing, (2) a readily sealable container vacuum port, and (3) the reuse of the vacuum seal.

The solution:

The seal-off assembly utilizes a vacuum valve that permits the container sealing plate to be transferred

from the vacuum valve stem to the container after evacuation has been completed. The sealing plate can be used repeatedly.

How it's done:

The seal-off assembly is shown in the closed or sealed condition. To vacuum pump the container, the outer shell of the seal-off assembly is removed permitting access to the sealing plate screws through

(continued overleaf)

openings in the inner housing. The sealing plate screws (Set B) are removed. The sealing plate is retracted from the container by turning the handwheel which lifts the valve stem and compresses the bellows. The O-ring seal between the sealing plate and the container is a part of the sealing plate and is withdrawn with the plate. The outer shell is replaced and a large diameter throughpath completely sealed from the atmosphere is now available for vacuum pumping.

When the desired vacuum level is reached in the container and seal-off is required, the sealing plate is lowered until a seal is made between the container and the sealing plate. Atmospheric pressure may then be introduced into the seal-off assembly without violating the vacuum in the container. The outer shell is removed and the sealing plate screws (Set B) are inserted and tightened. The sealing plate screws (Set A) are removed permitting complete removal of the seal-off assembly except for the sealing plate. Any further need for container evacuation can easily be accomplished by repeating this operation using the same sealing plate.

Notes:

1. An advantage of this device is the ability in the event of a small leak in the container to repump it without exposing the container to atmosphere.
2. In the event of replacement or adjustment of a part of the container, the container can be back-filled with dry nitrogen at pressures above one atmosphere to avoid exposing the container to an uncontrolled atmosphere.
3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Goddard Space Flight Center
Greenbelt, Maryland 20771
Reference: B66-10446

Patent status:

No patent action is contemplated by NASA.

Source: Robert R. Demers
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